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MISCELLANEOUS ELECTRICAL EQUIPMENT AND SUPPLIES

Industries 3691, 3692, 3694, 3695, and 3699

INTRODUCTION

This report presents preliminary statistics from the 1987 Census of Manufactures for those establishments classified in the industries listed above. These data will be superseded by a more comprehensive final paperbound report. The method of data collection and use of administrative data are discussed in detail in the appendix.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The definitions of these industries are the same as those used in the 1987 Standard Industrial Classification (SIC) Manual.¹

INDUSTRY 3691, STORAGE BATTERIES

In the 1987 Census of Manufactures, Industry 3691, Storage Batteries, had employment of 24.2 thousand. The employment figure was 6 percent above the 22.9 thousand reported in 1982. Compared with 1986, employment in 1987 increased 4 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was \$3.3 billion. The products primary to this industry appear in table 2 and aggregated to \$3.2 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$1.6 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET

In the 1987 Census of Manufactures, Industry 3692, Primary Batteries, Dry and Wet, had employment of 10.7 thousand. The employment figure was 9 percent below the 11.7 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$1.9 billion. The products primary to this industry appear in table 2 and aggregated to \$1.9 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$751.7 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT

In the 1987 Census of Manufactures, Industry 3694, Engine Electrical Equipment, had employment of 66.7 thousand. The employment figure was 55 percent above the 42.9 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was \$7.5 billion. The products primary to this industry appear in table 2 and aggregated to \$6.3 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$4.0 billion in 1987. Data on specific materials consumed appear in table 3.

¹Standard Industrial Classification Manual: 1987. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

Address inquiries to Bureau of the Census, Industry Division, Washington, DC 20233, or call Michael Narod (301) 763-7304.



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Bureau of the Census

INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA

In the 1987 Census of Manufactures, Industry 3695, Magnetic and Optical Recording Media, had employment of 24.7 thousand.

The total value of shipments for establishments classified in this industry was \$4.0 billion. The products primary to this industry appear in table 2 and aggregated to \$3.5 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$2.0 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.

In the 1987 Census of Manufactures, Industry 3699, Electrical Equipment and Supplies, N.E.C., had employment of 59.9 thousand.

The total value of shipments for establishments classified in this industry was \$5.1 billion. The products primary to this industry appear in table 2 and aggregated to \$5.7 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to \$2.2 billion in 1987. Data on specific materials consumed appear in table 3.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables in this publication:

- Represents zero.

(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

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Census/ASM		
Durables	Kenneth Hansen	(301) 763-7304
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Import/Export Publications	Foreign Trade Division	(301) 763-5140
Industry Analysis and Forecasts	International Trade Administration	(202) 377-4356

Table 1. Historical Statistics for the Industry: 1987 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix]

Year ¹	Com- panies ² (no.)	All establishments ³		All employees		Production workers			Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expendi- tures ⁴ (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Ratios	
		Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Spe- cial- ization (per- cent)	Cover- age (per- cent)
INDUSTRY 3691, STORAGE BATTERIES															
1987 Census -----	(NA)	188	116	24.2	626.0	19.4	38.3	473.1	1 703.9	1 623.0	3 300.9	111.7	450.6	(NA)	(NA)
1986 ASM -----	(NA)	(NA)	(NA)	23.2	594.6	18.3	37.1	444.3	1 639.0	1 348.3	2 991.8	109.8	413.8	(NA)	(NA)
1985 ASM -----	(NA)	(NA)	(NA)	23.5	567.2	18.6	36.1	425.4	1 535.3	1 263.0	2 797.1	118.0	411.6	(NA)	(NA)
1984 ASM -----	(NA)	(NA)	(NA)	23.7	563.8	19.0	38.5	426.2	1 550.0	1 386.1	2 916.3	132.1	414.0	(NA)	(NA)
1983 ASM -----	(NA)	(NA)	(NA)	22.4	486.8	18.1	34.9	365.6	1 331.8	1 217.1	2 542.6	98.1	392.9	(NA)	(NA)
1982 Census -----	129	201	123	22.9	473.6	18.0	34.4	347.3	1 203.0	1 196.2	2 431.3	109.7	376.9	97	98
1981 ASM -----	(NA)	(NA)	(NA)	24.0	471.9	19.2	38.8	354.4	1 297.8	1 314.8	2 603.2	96.8	398.7	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	24.7	428.0	19.6	38.8	312.6	1 175.7	1 342.9	2 571.5	77.9	393.2	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	27.6	434.4	22.7	47.1	338.6	1 304.9	1 400.3	2 607.1	96.9	458.8	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	27.2	401.6	22.4	46.3	316.4	1 043.7	1 260.4	2 269.6	129.4	351.2	(NA)	(NA)
1977 Census -----	134	218	134	25.9	358.7	21.1	43.4	276.4	927.8	1 103.6	1 982.5	122.2	292.9	97	99
1976 ASM -----	(NA)	(NA)	(NA)	23.1	292.9	19.1	38.8	223.5	723.3	809.5	1 519.7	86.2	230.2	(NA)	(NA)
1975 ASM -----	(NA)	(NA)	(NA)	21.7	244.4	17.8	34.5	183.4	578.6	716.6	1 302.3	77.1	206.8	(NA)	(NA)
1974 ASM -----	(NA)	(NA)	(NA)	23.4	243.3	19.5	38.9	189.5	616.0	666.4	1 234.2	60.2	224.1	(NA)	(NA)
1973 ASM -----	(NA)	(NA)	(NA)	23.9	237.6	19.5	39.6	181.6	535.2	554.1	1 070.8	39.4	158.9	(NA)	(NA)
1972 Census -----	138	212	120	22.1	209.3	18.0	36.0	159.3	477.8	511.7	968.6	30.8	133.7	98	99
INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET															
1987 Census -----	(NA)	70	36	10.7	231.2	8.2	16.0	155.2	1 130.0	751.7	1 875.1	60.7	163.7	(NA)	(NA)
1986 ASM -----	(NA)	(NA)	(NA)	11.0	218.3	8.3	15.7	139.0	803.3	759.7	1 570.4	47.0	175.8	(NA)	(NA)
1985 ASM -----	(NA)	(NA)	(NA)	11.4	210.7	8.6	16.2	139.8	778.3	712.0	1 479.1	65.8	157.7	(NA)	(NA)
1984 ASM -----	(NA)	(NA)	(NA)	11.9	215.0	9.0	16.9	138.5	695.9	731.5	1 426.1	37.7	161.7	(NA)	(NA)
1983 ASM -----	(NA)	(NA)	(NA)	11.4	194.2	8.7	16.5	133.8	585.1	620.8	1 206.9	23.9	150.8	(NA)	(NA)
1982 Census -----	36	55	35	11.7	192.3	9.1	17.6	137.0	559.2	531.7	1 101.8	42.9	148.5	94	95
1981 ASM -----	(NA)	(NA)	(NA)	11.8	174.2	9.4	18.3	130.2	478.0	578.3	1 044.0	59.3	187.2	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	11.8	154.3	9.5	18.2	117.8	469.6	489.3	952.9	68.6	159.5	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	12.1	145.0	9.8	19.1	109.2	417.7	446.9	851.9	48.4	152.2	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	12.3	134.0	10.3	19.7	100.9	389.7	378.3	759.1	71.9	119.8	(NA)	(NA)
1977 Census -----	41	58	33	11.0	118.2	9.0	18.0	87.4	343.2	329.4	666.1	35.4	100.1	96	97
1976 ASM -----	(NA)	(NA)	(NA)	10.4	110.5	8.1	16.0	76.5	360.8	290.6	627.1	24.8	93.3	(NA)	(NA)
1975 ASM -----	(NA)	(NA)	(NA)	9.0	85.5	6.8	13.7	58.0	261.2	212.1	473.7	15.4	93.6	(NA)	(NA)
1974 ASM -----	(NA)	(NA)	(NA)	9.5	83.8	7.6	15.2	60.0	243.3	190.1	423.3	13.2	91.8	(NA)	(NA)
1973 ASM -----	(NA)	(NA)	(NA)	8.7	70.8	7.1	14.2	51.8	232.3	151.2	380.7	7.9	72.1	(NA)	(NA)
1972 Census -----	30	48	31	8.4	64.6	6.8	13.5	46.4	221.6	130.5	348.1	7.2	63.2	95	98
INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT															
1987 Census -----	(NA)	480	233	66.7	1 709.4	51.5	101.9	1 181.0	3 437.3	4 027.5	7 470.8	233.8	1 112.5	(NA)	(NA)
1986 ASM -----	(NA)	(NA)	(NA)	53.2	1 248.8	41.1	80.8	891.2	3 004.0	3 027.8	6 071.1	186.2	779.9	(NA)	(NA)
1985 ASM -----	(NA)	(NA)	(NA)	52.9	1 224.7	40.5	78.8	863.8	3 121.0	2 820.9	5 925.3	222.2	768.9	(NA)	(NA)
1984 ASM -----	(NA)	(NA)	(NA)	55.3	1 202.8	43.4	85.1	857.3	3 280.3	2 732.7	5 971.3	166.0	713.9	(NA)	(NA)
1983 ASM -----	(NA)	(NA)	(NA)	46.6	939.8	36.4	68.8	640.8	2 364.3	1 873.7	4 212.4	112.7	558.7	(NA)	(NA)
1982 Census -----	393	433	196	42.9	820.5	32.3	60.5	534.7	1 851.5	1 582.1	3 464.3	78.4	501.5	85	88
1981 ASM -----	(NA)	(NA)	(NA)	53.5	1 022.5	40.5	75.8	691.2	2 168.3	1 943.7	4 071.0	156.8	633.3	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	54.5	933.5	41.7	76.8	641.3	1 816.4	1 801.2	3 684.3	126.3	574.2	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	64.4	1 038.3	51.5	97.4	754.6	2 253.1	1 919.7	4 124.3	159.7	620.0	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	70.1	1 060.7	57.4	110.7	787.8	2 251.7	1 870.3	4 097.9	172.7	550.4	(NA)	(NA)
1977 Census -----	372	409	181	63.8	948.4	51.8	102.6	708.6	2 041.3	1 647.3	3 647.2	146.0	488.3	81	89
1976 ASM -----	(NA)	(NA)	(NA)	57.7	785.1	46.8	92.1	592.1	1 779.3	1 375.0	3 100.3	73.3	415.2	(NA)	(NA)
1975 ASM -----	(NA)	(NA)	(NA)	53.0	646.3	42.5	81.6	474.3	1 295.1	1 095.2	2 427.6	51.9	357.4	(NA)	(NA)
1974 ASM -----	(NA)	(NA)	(NA)	61.5	699.7	50.4	99.4	530.3	1 310.0	1 136.0	2 388.1	131.5	415.6	(NA)	(NA)
1973 ASM -----	(NA)	(NA)	(NA)	63.7	696.5	52.8	108.5	534.5	1 385.9	1 023.8	2 343.0	80.9	340.8	(NA)	(NA)
1972 Census -----	265	290	143	57.9	591.3	47.7	96.9	451.7	1 212.6	855.0	2 035.0	30.8	245.2	79	87
INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA ⁵															
1987 Census -----	(NA)	181	75	24.7	623.2	16.3	33.1	336.6	2 004.7	2 004.8	3 989.4	245.8	421.3	(NA)	(NA)
INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C. ⁵															
1987 Census -----	(NA)	1 319	472	59.9	1 440.7	32.7	63.6	553.2	2 783.4	2 173.7	5 111.1	180.5	1 418.1	(NA)	(NA)

Note: Establishments of single unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. Data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were estimated based on administrative-record information from other agencies in conjunction with industry averages. These establishments accounted for the following percent of total value of shipments: SIC 3691, 7%; SIC 3692, 4%; SIC 3694, 6%; SIC 3695, 4%; and SIC 3699, 14%.

¹In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during year.

⁴Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

⁵Industry definition is new for 1987 Census of Manufactures. An explanation of the Standard Industrial Classification revision will appear in the final industry series text that supercedes this report.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3691- --	STORAGE BATTERIES						
	Total	(NA)	(X)	3 192.5	(NA)	(X)	2 347.4
36913 --	Storage batteries, lead acid type, BCI dimensional size group 8D (1.5 cu ft or .042 cu m and smaller)	(NA)	(X)	2 259.5	(NA)	(X)	1 757.8
36913 11	Starting, lighting, and ignition (SLI) type:	(NA)	(S)	3508.6	19	12.1	309.2
36913 12	For original equipment	(NA)	(S)	1 722.1	36	52.9	1 397.1
36913 17	For replacement	(NA)	(D)	(?)	11	2.1	51.4
36913 00	Other than (SLI) type	(NA)	(X)	28.8	(NA)	(X)	.1
36914 --	Storage batteries, lead acid type, larger than BCI dimensional size group 8D (larger than 1.5 cu ft or .042 cu m)	(NA)	(X)	418.4	(NA)	(X)	301.8
36914 07	Starting, lighting, and ignition (SLI) type (including aircraft and marine)	(NA)	-	-	8	(S)	6.5
	Other than (SLI) type:	(NA)					
36914 11	Motive power type:	(NA)	(S)	91.8	16	750.9	140.3
36914 19	Industrial truck	(NA)	(S)	15.5	12	66.6	23.3
36914 22	Other motive power, including mining and industrial locomotive	(NA)	(S)	294.4	4	463.6	107.3
36914 25	Standby emergency power	(NA)	(S)		7	*52.6	22.4
36914 00	Other, including railway diesel starting batteries	(NA)	(X)	16.7	(NA)	(X)	1.9
36915 --	Storage batteries, except lead acid, including parts for all storage batteries	(NA)	(X)	340.4	(NA)	(X)	228.9
36915 01	Nickel cadmium (sealed or vented)	(NA)	(S)	254.7	9	46.8	174.9
36915 02	Other than nickel cadmium	(NA)	(S)	81.2	11	(NA)	54.0
36915 91	Parts for all storage batteries (excluding cases and containers)	(NA)	(X)	4.5	(NA)	(X)	-
36915 00	Storage batteries, except lead acid, including parts for all storage batteries, n.s.k.	(NA)	(X)	174.2	(NA)	(X)	58.9
36910 --	Storage batteries, n.s.k.	(NA)	(X)	145.0	(NA)	(X)	30.7
36910 00	Storage batteries, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	29.2	(NA)	(X)	28.2
36910 02	Storage batteries, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)		(NA)	(X)	
3692- --	PRIMARY BATTERIES, DRY AND WET						
	Total	(NA)	(X)	1 911.7	(NA)	(X)	1 066.4
36920 --	Primary batteries, dry and wet:						
	Primary cells and batteries having an external volume not exceeding 300 cc (18.3 cu in.):						
36920 01	Manganese dioxide	(NA)	(D)	(4)			
36920 03	Silver oxide	(NA)	(S)	76.4			
36920 04	Mercuric oxide	(NA)	(S)	63.3	(NA)	2 538.7	1 005.6
36920 05	Other	(NA)	(S)	106.0			
36920 07	Primary cells and batteries having an external volume exceeding 300 cc (18.3 cu in.)	(NA)	(S)	41 521.9			
36920 09	Parts for primary batteries (excluding cases and containers)	(NA)	(X)	37.7	5	(X)	41.5
36920 00	Primary batteries, dry and wet, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	95.3	(NA)	(X)	15.2
36920 02	Primary batteries, dry and wet, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	11.1	(NA)	(X)	4.1
3694- --	ENGINE ELECTRICAL EQUIPMENT						
	Total	(NA)	(X)	6 286.9	(NA)	(X)	3 007.8
36941 --	Ignition harness and cable sets	(NA)	(X)	714.6	(NA)	(X)	319.0
	Ignition harness sets:						
36941 01	Automotive type	(NA)	(S)	526.2	30	(S)	173.4
36941 02	Other, including tractor, stationary engine, and aircraft	(NA)	(S)	18.1	11	(S)	29.2
	Cable sets:						
36941 03	Automotive type	(NA)	(S)	86.3	16	(S)	91.0
36941 04	Aircraft and other type	(NA)	(S)	36.9	4	(S)	19.9
36941 00	Ignition harness and cable sets, n.s.k.	(NA)	(X)	47.1	(NA)	(X)	5.5
36942 --	Battery charging alternators, generators, and regulators	(NA)	(X)	854.1	(NA)	(X)	584.9
	Battery charging alternators and generators for internal combustion engines:						
36942 01	Automotive types, new	(NA)	18.7	582.6			
36942 02	Other types, new	(NA)	*.2	38.3	92	*14.7	515.4
36942 03	Rebuilt, all types	(NA)	*6.2	173.3			
36942 04	Regulators for battery charging alternators and generators (new and rebuilt)	(NA)	**9.3	33.6	18	(S)	50.0
36942 00	Battery charging alternators, generators, and regulators, n.s.k.	(NA)	(X)	26.3	(NA)	(X)	19.5
36943 --	Cranking motors (starters)	(NA)	(X)	713.2	(NA)	(X)	483.5
36943 01	Automotive types, new	(NA)	(S)	(9)			
36943 02	Other types, new	(NA)	(S)	503.1	56	*13.7	478.4
36943 03	Rebuilt, all types	(NA)	*6.5	195.4			
36943 00	Cranking motors, n.s.k.	(NA)	(X)	14.7	(NA)	(X)	5.1
36944 --	Spark plugs:						
36944 00	Spark plugs	(NA)	887.6	650.7	13	868.4	525.8

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3694—	ENGINE ELECTRICAL EQUIPMENT—Con.						
36947 —	Complete engine electrical equipment, n.e.c.	(NA)	(X)	2 513.1	(NA)	(X)	633.8
36947 01	Ignition coils (all types) millions.....	(NA)	(S)	219.1	13	(S)	68.5
36947 02	Distributors (all types) do.....	(NA)	(S)	406.7	11	8.9	349.4
36947 04	Magnetos, magneto-dynamos, magnetic flywheels do.....	(NA)	(S)	58.8	13	(X)	124.5
36947 05	Other complete ignition equipment, including electronic ignitions	(NA)	(X)	190.2			
36947 09	Other complete electrical and/or electronic equipment for internal combustion engines, including complete engine control equipment	(NA)	(X)	1 523.4	11	(X)	87.4
36947 00	Complete engine electrical equipment, n.e.c., n.s.k.	(NA)	(X)	114.7	(NA)	(X)	3.9
36949 —	Parts for engine electrical and/or electronic equipment	(NA)	(X)	470.1	(NA)	(X)	324.1
36949 01	Armatures, field coils, and drive-end housings for cranking motors	(NA)	(X)	80.1	10	(X)	38.8
36949 07	Armatures and field coils for alternators and generators	(NA)	(X)	41.9	(NA)	(X)	(⁶)
36949 11	Parts for ignition distributors:						
	Distributor heads and rotors	(NA)	(X)	60.9	10	(X)	77.7
36949 12	Breaker point sets millions.....	(NA)	(S)	34.2	13	(S)	87.1
36949 13	Condensers (capacitors) do.....	(NA)		12.0	11	(S)	25.1
36949 19	Other parts for engine electrical and/or electronic equipment	(NA)	(X)	213.0	25	(X)	693.2
36949 00	Parts for engine electrical equipment, n.s.k.	(NA)	(X)	27.9	(NA)	(X)	2.3
36940 —	Engine electrical equipment, n.s.k.	(NA)	(X)	371.1	(NA)	(X)	136.8
36940 00	Engine electrical equipment, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	250.6	(NA)	(X)	84.2
36940 02	Engine electrical equipment, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	120.5	(NA)	(X)	52.6
3695—	MAGNETIC AND OPTICAL RECORDING MEDIA						
	Total	(NA)	(X)	3 490.5	(NA)	(X)	(⁷)
36950 —	Magnetic and optical recording media (unrecorded):						
36950 00	Magnetic and optical recording media (unrecorded) (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	(NA)	(X)	3 451.3	(NA)	(X)	(⁸)
36950 02	Magnetic and optical recording media, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	39.2	(NA)	(X)	(⁷)
3699—	ELECTRONIC AND ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.						
	Total	(NA)	(X)	5 684.1	(NA)	(X)	(⁹)
36991 —	Electronic teaching machines, teaching aids, trainers, and simulators, including kits:						
36991 00	Electronic teaching machines, teaching aids, trainers and simulators (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	(X)	1 194.0	(NA)	(X)	(¹⁰)
36992 —	Laser systems and equipment (except communication):						
36992 00	Laser systems and equipment (except communication) (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	(X)	885.9	(NA)	(X)	(¹⁰)
36995 —	Ultrasonic equipment (except medical and dental):						
36995 00	Ultrasonic equipment (except medical and dental) (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	(X)	87.1	(NA)	(X)	(¹⁰)
36996 —	Apparatus wire and cordage manufactured from purchased insulated wire:						
36996 00	Apparatus wire and cordage manufactured primarily from purchased insulated wire (see also code 33576) (for additional detail, see Current Industrial Report MA-33L, Insulated Wire and Cable)	(NA)	(X)	234.5	56	(X)	171.0
36997 —	Electronic systems and equipment n.e.c.:						
36997 00	Electronic systems and equipment, n.e.c.; including amplifiers (except audio, RF power, and video) (for additional detail, see Current Industrial Report MA-36P, Communication Equipment, Including Telephone and Telegraph Equipment)	(NA)	(X)	1 718.0	419	(X)	¹⁰ 021.9
36998 —	Electrical products, n.e.c.	(NA)	(X)	767.9	(NA)	(X)	562.4
36998 01	Electric gongs, chimes, bells, etc.	(NA)	(X)	17.2	5	(X)	26.6
36998 02	Christmas tree lighting outfits, including value of bulbs made or purchased and assembled in outfits	(NA)	(X)	(¹¹)	6	(X)	26.6
36998 03	Insect killers thousands.....	(NA)	(S)	35.8	(NA)	(¹²)	(¹²)
36998 04	Automatic garage door openers, complete unit including controllers (for additional detail, see Current Industrial Report MA-36Q, Semiconductors, Printed Circuit Boards, and Other Electronic Components)	(NA)	(X)	235.7	9	(X)	146.3
36998 05	Other electrical door openers thousands.....	(NA)	(S)	36.9	7	(S)	8.3

See footnotes at end of table.

Table 2. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3699—	ELECTRONIC AND ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.—Con.						
36998 —	Electrical products, n.e.c.—Con.						
36998 06	Electric fence chargers ----- do..	(NA)	(D)	(¹)	5	.3	9.4
36998 07	Electric outboard motors for boats (complete propulsion unit) ----- do..	(NA)	(D)	(¹)	3	**173.8	23.7
36998 19	Other electrical products, n.e.c. -----	(NA)	(X)	11398.7	125	(X)	12302.8
36998 00	Electrical products, n.e.c., n.s.k. -----	(NA)	(X)	43.6	(NA)	(X)	18.7
36990 —	Electronic and electrical equipment and supplies, n.e.c., n.s.k. -----	(NA)	(X)	796.7	(NA)	(X)	(⁹)
36990 00	Electronic and electrical equipment, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	593.2	(NA)	(X)	(⁹)
36990 02	Electronic and electrical equipment, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	203.5	(NA)	(X)	(⁹)

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³For 1987, data for product code 3691317 are combined with product code 3691311 to avoid disclosing data for individual companies.

⁴For 1987, data for product code 3692001 are included with product code 3692007 to avoid disclosing data for individual companies.

⁵For 1987, data for product code 36943 01 are included with product code 36943 02 to avoid disclosing data for individual companies.

⁶For 1982, product code 3694907 was not collected separately. It was included with product code 3694919.

⁷SIC industry 3695, Magnetic and Recording Media, is published as a separate industry for the first time in 1987. In 1982, data for this industry were included in old SIC industries 3573, Electronic Computing Equipment, and 3679, Electronic Components, N.E.C., and are not available separately.

⁸In 1982, data for product code 3695000 were published under product codes 3679200, and part of product code 3573200, and are not available separately.

⁹SIC industry 3699, Electrical Equipment and Supplies, N.E.C., is published as a separate industry for the first time in 1987. In 1982, data for this industry included data from part of industry 3662, and part of industry 3699. For a more detailed explanation of the Standard Industrial Classification revision, see the final industry series text for this industry.

¹⁰In 1982, data for product codes 3699100, 3699200, 3699500, and 3699700 were published as product code 3662900. In 1982, product code 3662900 included electronic kits which were classified by type of kit in 1987. For example, computer kits would be classified with computers.

¹¹For 1987, product codes 3699802, 3699806, and 3699807 were included with product code 3699819 to avoid disclosing data for individual companies.

¹²For 1982, product code 3699803 was not collected separately. It was included with product code 3699819.

Table 3. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3691, STORAGE BATTERIES				
	Materials, parts, containers, and supplies -----	(X)	1 508.6	(X)	1 098.7
	Lead and lead alloys:				
333986	Refined unalloyed lead ----- 1,000 s tons..	259.1	189.8	235.1	119.4
333988	Antimonial lead ----- do..	248.4	153.2	286.2	181.6
333989	Lead-calcium alloyed ----- do..	185.4	112.7	140.1	89.4
336002	Nonferrous castings (rough and semifinished) ----- mil lb..	(D)	(D)	(S)	4.9
281634	Litharge ----- 1,000 s tons..	275.2	138.6	220.2	158.6
333980	Cadmium, unalloyed ----- do..	(D)	(D)	(X)	(⁹)
335616	Nickel and nickel-base alloy mill shapes and forms ----- mil lb..	4.5	13.0	(X)	(⁹)
335697	Zinc and zinc-base alloy mill shapes and forms ----- 1,000 s tons..	(S)	.2	(S)	.7
362406	Carbon and graphite electrodes, and other carbon and graphite products ----- do..	(S)	(Z)	3.4	2.7
282104	Plastics resins consumed in the form of pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes ----- mil lb..	(D)	(D)	25.5	11.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes ----- 1,000 s tons..	(S)	18.1	4.0	17.9
306902	Fabricated rubber products, except tires, tubes, hose, belting, except gaskets ----- do..	8.8	9.6	12.4	31.3
308006	Fabricated plastics products, except gaskets ----- do..	(S)	147.2	70.9	154.1
281930	Sulfuric acid ----- do..	233.1	25.3	(S)	16.9
281900	Other industrial inorganic chemicals, including mercury oxide and silver oxide ----- do..	(D)	(D)	2.7	6.4
331012	Carbon steel, sheet and strip ----- do..	(D)	(D)	6.5	7.0
346901	Metal stampings ----- do..	(X)	11.8	(S)	7.0
265001	Paperboard containers, boxes, and corrugated paperboard ----- 1,000 s tons..	(S)	13.5	(S)	21.6
970099	All other materials and components, parts, containers, and supplies -----	(X)	342.3	(X)	228.0
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	288.0	(X)	40.8

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3692, PRIMARY BATTERIES, DRY AND WET				
	Materials, parts, containers, and supplies -----	(X)	726.2	(X)	499.7
	Lead and lead alloys:				
333986	Refined unalloyed lead ----- 1,000 s tons--	(D)	(D)	-	-
333988	Antimonial lead ----- do--	-	-	(D)	(⁴)
333989	Lead-calcium alloyed ----- do--	-	-	-	-
336002	Nonferrous castings (rough and semifinished) ----- mil lb--	(D)	(D)	19.7	10.5
281634	Litharge ----- 1,000 s tons--	(D)	(D)	(⁵)	(⁵)
333980	Cadmium, unalloyed ----- do--	-	-	(X)	(³)
335616	Nickel and nickel-base alloy mill shapes and forms ----- mil lb--	(D)	(D)	(X)	(³)
335697	Zinc and zinc-base alloy mill shapes and forms ----- 1,000 s tons--	**25.8	39.6	**17.2	28.6
362406	Carbon and graphite electrodes, and other carbon and graphite products ----- do--	(S)	37.4	*20.4	25.6
282104	Plastics resins consumed in the form of pellets, powders, liquids, etc., but excluding sheets, rods, tubes, and shapes ----- mil lb--	(D)	(D)	(S)	3.4
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes ----- 1,000 s tons--	(S)	26.4	13.3	17.4
306902	Fabricated rubber products, except tires, tubes, hose, belting, except gaskets ----- do--	-	-	(S)	.4
308006	Fabricated plastics products, except gaskets ----- do--	(S)	.7	.4	3.6
281930	Sulfuric acid ----- do--	(D)	(D)	(⁵)	(⁵)
281900	Other industrial inorganic chemicals, including mercury oxide and silver oxide ----- do--	(S)	28.6	*57.5	*53.1
331012	Carbon steel, sheet and strip ----- do--	**9.9	16.2	(X)	(³)
346901	Metal stampings ----- do--	(X)	50.3	(S)	63.2
265001	Paperboard containers, boxes, and corrugated paperboard ----- 1,000 s tons--	(S)	30.4	**51.7	15.7
970099	All other materials and components, parts, containers, and supplies ----- do--	(X)	408.4	(X)	³ 4263.3
971000	Materials, parts, containers, and supplies, n.s.k. ² ----- do--	(X)	74.1	(X)	15.1
	INDUSTRY 3694, ENGINE ELECTRICAL EQUIPMENT				
	Materials, parts, containers, and supplies -----	(X)	3 677.5	(X)	1 309.0
	Mill shapes and forms, except castings:				
	Carbon steel:				
331011	Bars and bar shapes ----- 1,000 s tons--	32.5	20.6	35.9	25.6
331012	Sheet and strip ----- do--	-	-	84.9	45.8
331017	Wire and wire products ----- do--	169.4	147.9	(S)	30.5
331013	Plates ----- do--	-	-	(⁶)	(⁶)
331019	All other carbon steel mill shapes and forms ----- do--	-	-	*42.1	*26.9
331020	Alloy steel, except stainless ----- do--	*2.7	3.0	*6.6	5.6
	Copper and copper-base alloy:				
335728	Bare wire for electrical conduction only ----- mil lb--	-	-	**2.4	3.4
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes ----- do--	74.4	79.4	15.1	15.5
335143	Plate, sheet, and strip, including military cups and discs ----- do--	-	-	(⁷)	(⁷)
335152	Pipe and tube ----- do--	-	-	*11.8	*11.7
335010	Aluminum and aluminum-base alloy ----- do--	*4.0	4.9	(S)	4.6
335609	Nonferrous metal mill shapes and forms, except copper and aluminum ----- do--	(S)	22.9	1.4	5.4
335790	Insulated wire and cable, except magnet wire ----- do--	(S)	80.4	(S)	33.7
335770	Magnet wire ----- do--	(S)	38.8	28.3	35.3
	Castings (rough and semifinished):				
332007	Iron (gray and malleable) and steel ----- 1,000 s tons--	(S)	5.5	*7.2	8.5
336005	Aluminum and aluminum-base alloy ----- mil lb--	(S)	86.1	16.5	13.1
336003	Other nonferrous ----- do--	(S)	.7	(S)	6.0
	Bearings, including mounted and unmounted:				
356218	Ball ----- do--	(X)	22.4	(X)	7.5
356201	Roller ----- do--	(X)	2.0	(X)	6.2
356810	Plain bearings and bushings ----- do--	(X)	3.6	(X)	8.9
356601	Speed changers, gears, and industrial high-speed drives ----- do--	(X)	(⁴)	(X)	2.2
265001	Paperboard boxes and containers, and corrugated paperboard ----- 1,000 s tons--	(S)	23.1	(S)	21.8
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc., but exclude sheets, rods, tubes, and shapes ----- mi lb--	(S)	19.8	**20.2	23.2
345001	Bolts, nuts, screws, washers, rivets, and screw machine products ----- do--	(X)	28.8	(X)	40.0
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets ----- do--	(X)	16.9	(X)	8.9
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes ----- do--	(X)	42.8	(X)	28.0
308006	Fabricated plastics products, except gaskets, hose, and belting ----- do--	(X)	28.8	(X)	20.6
364300	Current-carrying wiring devices, including wire connectors ----- do--	(X)	120.4	(X)	35.9
367004	Resistors, capacitors, transformers, electron tubes, semiconductors, and other electronic-type components ----- do--	(X)	221.7	(X)	112.6
190033	Used engine electrical equipment for rebuilding, or to be used in rebuilding (starting motors, generators, motor and alternator cones, etc.) ----- do--	(X)	61.1	(X)	54.0
970099	All other materials and components, parts, containers, and supplies ----- do--	(X)	*1 850.9	(X)	502.1
971000	Materials, parts, containers, and supplies, n.s.k. ² ----- do--	(X)	745.0	(X)	164.7

See footnotes at end of table.

Table 3. Materials Consumed by Kind: 1987 and 1982—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

of abbreviations and symbols, see introductory text]		1987		1982	
1987 material code	Material	Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3695, MAGNETIC AND OPTICAL RECORDING MEDIA					
	Materials, parts, containers, and supplies	(X)	\$1 684.0	(X)	(⁶)
	Mill shapes and forms, except castings:				
331001	Carbon steel 1,000 s tons..	(D)	(D)	(NA)	(NA)
331020	Alloy steel, except stainless	(D)	(D)	(NA)	(NA)
331031	Stainless steel	(D)	(D)	(NA)	(NA)
	Copper and copper base alloy:				
335728	Bare wire for electrical conduction only mil lb..	(D)	(D)	(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes	(D)	(D)	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs	(D)	(D)	(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil mil lb..	(S)	52.1	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	(S)	(Z)	(NA)	(NA)
335008	All other aluminum mill shapes and forms	*2.0	9.5	(NA)	(NA)
335770	Magnet wire	(D)	(D)	(NA)	(NA)
	Castings (rough and semifinished):				
332012	Iron (gray and malleable) and steel 1,000 s tons..	-	-	(NA)	(NA)
336005	Aluminum and aluminum-base alloy mil lb..	*.4	5.6	(NA)	(NA)
336003	Other nonferrous	-	-	(NA)	(NA)
362111	Fractional horsepower electric motors less than 1 hp number..	(D)	(D)	(NA)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	63.1	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	(D)	(NA)	(NA)
356201	Roller	(X)	(D)	(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	(D)	(NA)	(NA)
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	(X)	15.4	(NA)	(NA)
346901	Metal stampings	-	3.2	(NA)	(NA)
308006	Fabricated plastics products (except gaskets, hoses, and belting)	(X)	67.2	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	994.4	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	418.9	(NA)	(NA)
INDUSTRY 3699, ELECTRICAL EQUIPMENT AND SUPPLIES, N.E.C.					
	Materials, parts, containers, and supplies	(X)	\$1 905.3	(X)	(⁶)
	Mill shapes and forms, except castings and forgings:				
331001	Carbon steel 1,000 s tons..	(S)	14.9	(NA)	(NA)
331020	Alloy steel, except stainless	(S)	10.2	(NA)	(NA)
331031	Stainless steel	(S)	5.0	(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire for electrical conduction only mil lb..	(S)	9.5	(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/ or drawn shapes	(S)	17.9	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs	(S)	3.1		
335152	Pipe and tube	(S)	1.1		
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil mil lb..	(S)	6.4	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	(S)	15.3	(NA)	(NA)
335008	All other wire, rolled rod and bar, powder, welded tubing, etc.	(S)	2.7	(NA)	(NA)
335616	Nickel and nickel-base alloy mill shapes and forms	(S)	1.4	(NA)	(NA)
335691	Tantalum mill products 1,000 lb..	(D)	(⁴)	(NA)	(NA)
335791	Insulated copper wire and cable (except magnet wire) mil lb..	(S)	62.6	(NA)	(NA)
335770	Magnet wire	(S)	5.1	(NA)	(NA)
364300	Current-carrying wiring devices	(X)	21.1	(NA)	(NA)
265001	Paperboard containers, boxes, and corrugated paperboard	(X)	14.4	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	*827.0	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k. ²	(X)	887.6	(NA)	(NA)

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

³For 1982, data were not collected separately. They are included with material code 970099.

⁴Data are included with material code 970099 to avoid disclosing data for individual companies.

⁵For 1982, material codes 281634 and 281930 are combined with material code 281900 to avoid disclosing data for individual companies.

⁶For 1982, material code 331013 was combined with material code 331019 to avoid disclosing data for individual companies.

⁷For 1982, material code 335143 was combined with material code 335152 to avoid disclosing data for individual companies.

⁸Industry definition is new for 1987 and, therefore, 1987 data for materials consumed are not comparable to prior-year data. As a result, 1982 materials consumed data are not available.

APPENDIX

Scope and Coverage and Explanation of Terms

GENERAL

The 1987 Census of Manufactures is the 32nd census of manufacturing establishments conducted in the United States. For 1987, it was conducted as part of the economic censuses, which included the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses, under authority of title 13 of the United States Code. Title 13 specifies that an economic census be conducted every 5 years to cover years ending in 2 and 7.

SCOPE AND COVERAGE

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. All manufacturing establishments with one paid employee or more at any time during the year are covered by the census of manufactures. Therefore, a company operating at more than one location is required to file a separate report for each location. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units which service manufacturing establishments of the same company. Where these auxiliary operations are conducted at the same location as the manufacturing operation, they are usually included in the report for the operating manufacturing establishment.

Use of Administrative Records

From a universe of approximately 350,000 manufacturing establishments in the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so the administrative-record cases would account for approximately 3 percent or less of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 20 employees were included. Where establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was frequently used.

For these nonmail establishments, (and a small number of larger establishment whose reports were not received at the time the data were tabulated) data on employment, payroll, and receipts were obtained from administrative records of other government agencies rather than from census forms. The administrative-record information was then used in conjunction with industry averages to estimate the data for these establishments. The value of shipments and cost of materials were not distributed among specific products and materials but were included in the product and material "not specified by kind" (n.s.k.) categories.

EXPLANATION OF TERMS

Number of establishments and companies—A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

All employees—Includes all full-time and part-time employees on the payrolls at any time during the year. Included are all persons on paid sick leave, paid holidays, and paid vacations. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

Production workers—Includes workers up through the working-supervisor level engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., power-plant), recordkeeping, and other closely associated services. Truckdrivers delivering ready-mixed concrete are also included in production workers.

Other employees—Includes nonproduction personnel, including those engaged in the following activities: supervision above working-supervisor level, sales (including driver/salespersons), sales delivery (truckdrivers and helpers), advertising, credit collection, installation and

servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional, and technical employees.

Payroll—Includes the gross earnings for the “employees” defined above, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees’ Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Respondents were told that in reporting they could follow the definition of payrolls used for calculating the Federal withholding tax.

Production-worker hours—Covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the plant.

Cost of materials—Refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuels consumed, regardless of whether they were purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (a) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) electric energy purchased; (c) fuels consumed for heat, power, or generating electricity; (d) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (e) products bought and resold in the same condition.

Specific materials consumed (table 3)—In addition to the total cost of materials which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. These inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers’ records. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which administrative records were used was estimated as “not specified by kind” (n.s.k.).

Value of shipments and other receipts—Generally refers to received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all

miscellaneous receipts such as receipts for contract work performed for others, installation and repair receipts, sale of scrap, and sale of products bought and resold without further processing. Included are all items made by or for the establishment from materials owned by it whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In a few industries, the value of production or value of work completed is used instead of value of shipments. These industries are identified in the introduction and are footnoted in table 1.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, that is, including not only the direct costs of production but also a reasonable proportion of “all other costs” (including company overhead and profit).

Shipments or production of individual products (table 2)—In the 1987 census, detailed shipment information was collected for approximately 11,000 individual products. These products are identified by a seven-digit code and are grouped into approximately 1,500 classes of products, which in turn are primary to 459 four-digit industries. Data at the five-digit product-class level have been collected each year as part of the annual survey of manufactures. Information at the seven-digit level, collected for many industries in the current industrial reports program, is not included in this table.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing, or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1), value added is adjusted only for the change in work-in-process inventories between the beginning and end of the year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

Value added avoids the duplication in the figure for value of shipments which results from the use of products of some establishments as materials by others. Value

added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

Expenditures for new plant and equipment—Establishments in operation and any known plants under construction were asked to report their expenditures for (a) permanent additions and major alterations to manufacturing establishments and (b) new machinery and equipment used for replacement and additions to plant capacity if they are of the type for which depreciation accounts are ordinarily maintained.

These totals exclude expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses. Data for used plant and equipment will be published in the final industry bulletin.

End-of-year inventories—Comprised of (a) finished products; (b) work-in-process; and (c) materials, supplies, fuels, etc. Beginning in 1982, respondents were asked to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method.

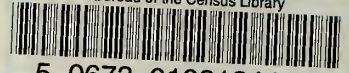
Therefore, 1982 through 1987 data for inventories are not strictly comparable to prior-year data.

Specialization and coverage ratios—An establishment is classified in a particular industry if its shipments of primary products of the industry exceed in value its shipments of the products of any other single industry. An establishments' shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). The following ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in table 1 and data on product shipments shown in table 2.

Specialization ratio—Represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio—Represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments, wherever classified.

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